

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-9. (Canceled)

10. (Currently Amended) A hologram recording method comprising:

recording a first set of holograms ~~hologram~~ of a plurality first set of pages in a region in an optical recording medium by irradiating the optical recording medium with a signal light beam and a reference light beam at the same time while making an angle formed between the signal light beam and the reference light beam a constant value while relatively moving at least one of (A) the signal light beam and the reference light beam and (B) the optical recording medium such that recording positions for the plurality first set of pages are changed at a predetermined interval from a recording start position,

shifting a recording start position of a second set of holograms of a second set of pages ~~hologram~~ from the recording start position of the first set of holograms ~~hologram~~ by substantially half of the predetermined interval, and

recording a plurality the second set of holograms of the second set of pages ~~of the second hologram~~ in the substantially same region where the first set of holograms ~~have hologram~~ has been recorded at the substantially same predetermined interval from the shifted recording start position.

11. (Canceled)

12. (Currently Amended) A hologram recording method according to claim 10,

wherein a polarization state of the signal light beam or the reference light beam at the time of recording each page of the second set of pages ~~of the second set of holograms~~ ~~hologram~~ is different from a polarization state of the signal light beam or the

reference light beam at the time of recording each page of the hologram previously recorded in the optical recording medium, and

wherein the optical recording medium comprises a material having photoinduced birefringence

13. (Currently Amended) A hologram recording method according to claim 12, wherein:

a polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of recording each page of the second set of pages of the second set of holograms hologram are orthogonal to each other when a polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of recording each page of the first set of pages of the first set of holograms of the first hologram previously recorded in the optical recording medium are parallel to each other, and

the polarization direction of the signal light beam and the polarization direction of the reference light beam at the time of recording each page of the second set of pages of the second set of holograms of the second hologram are parallel to each other when the polarization direction of the signal light beam and the polarization direction of the reference light beam at the time of recording each page of the first set of pages of the first set of holograms of the first hologram previously recorded in the optical recording medium are orthogonal to each other.

14. (Original) A hologram recording method according to claim 10, wherein the optical recording medium comprises a photorefractive material.

15. (Original) A hologram recording method according to claim 10, wherein the optical recording medium comprises a photochromic material.

16. (Original) A hologram recording method according to claim 10, wherein the optical recording medium comprises a polarization sensitive material.

17. (Original) A hologram recording method according to claim 10, wherein the optical recording medium comprises at least one kind of polymer selected from polyesters.

18. (Original) A hologram recording method according to claim 17, wherein the at least one kind of polymer has an azobenzene structure in a side chain.

19-28. (Canceled)

29. (Previously Presented) A hologram recording apparatus,
wherein the hologram recording apparatus makes an angle formed between a signal light beam and a reference light beam a constant value and irradiates an optical recording medium with the signal light beam and the reference light beam at the same time while relatively moving at least one of (A) the signal light beam and the reference light beam and (B) the optical recording medium from a recording start position, such that:

a first set of holograms of a first set of pages is recorded,
each page of the first set of pages in the first set of holograms is recorded at a predetermined interval, and

when a second set of holograms of a second set of pages is overwritten in substantially the same region where the first set of pages was of the first set of holograms was recorded, the hologram recording apparatus shifts a recording start position of the second set of holograms from the recording start position of the first set of holograms, which has been recorded, by substantially half of the predetermined interval and records each page of the second set of pages at the substantially same predetermined interval.

30. (Canceled)

31. (Previously Presented) A hologram recording apparatus comprising:
a light source for emitting a coherent light beam;
a stage which rotates or moves an optical recording medium;

a light beam separating optical path changing device which changes an optical path so that the optical recording medium is irradiated with a reference light beam and a signal light beam at the same time after the coherent light beam is separated into a light beam for the reference light beam and a light beam for the signal light beam;

a spatial light modulator which is arranged on the optical path of the light beam for the signal light beam, and modulates the light beam for the signal light beam according to a supplied recording signal for each page so as to generate a signal light beam for recording each page of a set of holograms;

a signal supplying device which supplies the recording signal for the set of holograms to the spatial light modulator so that a plurality of pages of the set of holograms is recorded at a predetermined interval from a recording start position in a region in the optical recording medium,

wherein when a new set of holograms of a new plurality of pages is recorded in substantially the same region where the set of holograms has been recorded, the signal supplying device supplies a recording signal for the new set of holograms to the spatial light modulator so that a recording start position of the new set of holograms is shifted from the recording position of the set of holograms, which has been recorded, by substantially half of the predetermined interval, and the new plurality of pages of the new set of holograms is recorded at the substantially same predetermined interval.

32. (Canceled)

33. (Previously Presented) A hologram recording apparatus according to claim 31, further comprising

an analyzer which transmits a component, in a predetermined polarization direction, of a diffraction light beam from each page of the set of holograms recorded in the optical recording medium, wherein

the detector detects intensities of transmitted light beams that are transmitted through the analyzer.

34. (Previously Presented) A hologram recording apparatus according to claim 31, wherein a polarization state of the signal light beam or the reference light beam at the time of recording each page of the new set of holograms is different from a polarization state of the signal light beam or the reference light beam at the time of recording each page of the set of holograms which has been previously recorded in the optical recording medium, and

wherein the optical recording medium comprises a material having photoinduced birefringence.

35. (Previously Presented) A hologram recording apparatus according to claim 34, wherein:

a polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of recording each page of the new set of holograms are orthogonal to each other when a polarization direction of the signal light beam and a polarization direction of the reference light beam at the time of recording each page of the set of holograms which has been previously recorded in the optical recording medium are parallel to each other, and

the polarization direction of the signal light beam and the polarization direction of the reference light beam at the time of recording each page of the new set of holograms are parallel to each other when the polarization direction of the signal light beam and the polarization direction of the reference light beam at the time of recording each page of the set of holograms which has been previously recorded in the optical recording medium are orthogonal to each other.

36-45. (Canceled)